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ABSTRACT

Biology 30 is a twelfth-grade physics course for students in Alberta, Canada. This document is a final test for the course. Intended for administration during January, 1987, it contains 80 multiple-choice questions and seven written-response questions. Two-and-one-half hours are allowed for completing the test. No answer key is included since scoring is done by the provincial education department. (ML)

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GRADE 12 DIPLOMA EXAMINATION

Biology 30

January 1987

Alberta
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GRADE 12 DIPLOMA EXAMINATION
BIOLOGY 30

DESCRIPTION

Time: 2½ hours

Total possible marks: 100

This is a **CLOSED-BOOK** examination consisting of two parts:

PART A: 80 multiple-choice questions each with a value of 1 mark.

PART B: Seven written-response questions for a total of 20 marks.

GENERAL INSTRUCTIONS

Fill in the information on the answer sheet as directed by the examiner.

For multiple-choice questions, read each carefully and decide which of the choices BEST completes the statement or answers the question. Locate that question number on the answer sheet and fill in the space that corresponds to your choice. USE AN HB PENCIL ONLY.

Example

This examination is for the subject area of

A. Chemistry
B. Biology
C. Physics
D. Mathematics

Answer Sheet

A	B	C	D
①	●	③	④

If you wish to change an answer, please erase your first mark completely.

For written-response questions, read each carefully, show all your calculations, and write your answer in the space provided in the examination booklet.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work.

DO NOT FOLD EITHER THE ANSWER SHEET OR THE EXAMINATION BOOKLET

The presiding examiner will collect the answer sheet and examination booklet for transmission to Alberta Education.

JANUARY 1987

PART A

INSTRUCTIONS

There are 80 multiple-choice questions with a value of one mark each in this section of the examination. Use the separate answer sheet provided and follow the specific instructions given.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work.

WHEN YOU HAVE COMPLETED PART A, PROCEED DIRECTLY TO PART B.

DO NOT TURN THE PAGES TO START THE EXAMINATION UNTIL TOLD TO DO SO BY THE PRESIDING EXAMINER.

1. A cell membrane consists mainly of

   A. lipid molecules
   B. DNA and proteins
   C. phospholipids and proteins
   D. proteins functioning as enzymes

2. Movement of substances through a cell membrane against a concentration gradient occurs by

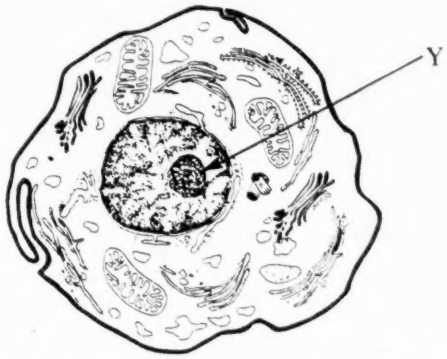
   A. osmosis
   B. diffusion
   C. active transport
   D. passive transport

3. The ribosomes and endoplasmic reticulum of a cell are involved in which functions?

   A. Cell respiration and protein synthesis
   B. Protein synthesis and cellular transport
   C. Nutrient digestion and protein synthesis
   D. Cell reproduction and cellular transport

Use the following information to answer question 4.

A Human Cell

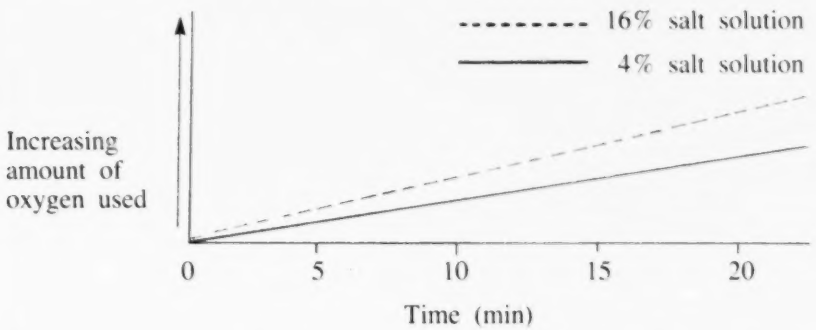


4. The structure labelled Y represents a

   A. nucleus
   B. vacuole
   C. centriole
   D. nucleolus

Use the following information to answer questions 5 and 6.

It has been shown experimentally that brine shrimp maintain constant salt concentration in their body fluids no matter what type of water they live in. An investigation determined the amount of oxygen used by brine shrimp in a 4% salt solution and in a 16% salt solution. The results are graphed below.



The shrimp in the 16% solution swam less actively than those in the 4% solution. In the long term, those living in the 4% solution grew more rapidly. Females living in the 16% solution produced fewer eggs.

5. The most likely hypothesis being tested in this experiment is that

   A. a uniform internal salt concentration can be maintained by brine shrimp

   B. less oxygen is contained in a 16% salt solution than in a 4% salt solution

   C. extra oxygen is required by the cells of brine shrimp for the work of active transport

   D. water instead of salt is pumped out of the cells of brine shrimp living in a 16% salt solution

6. Using all the information available, the experimenter can conclude that

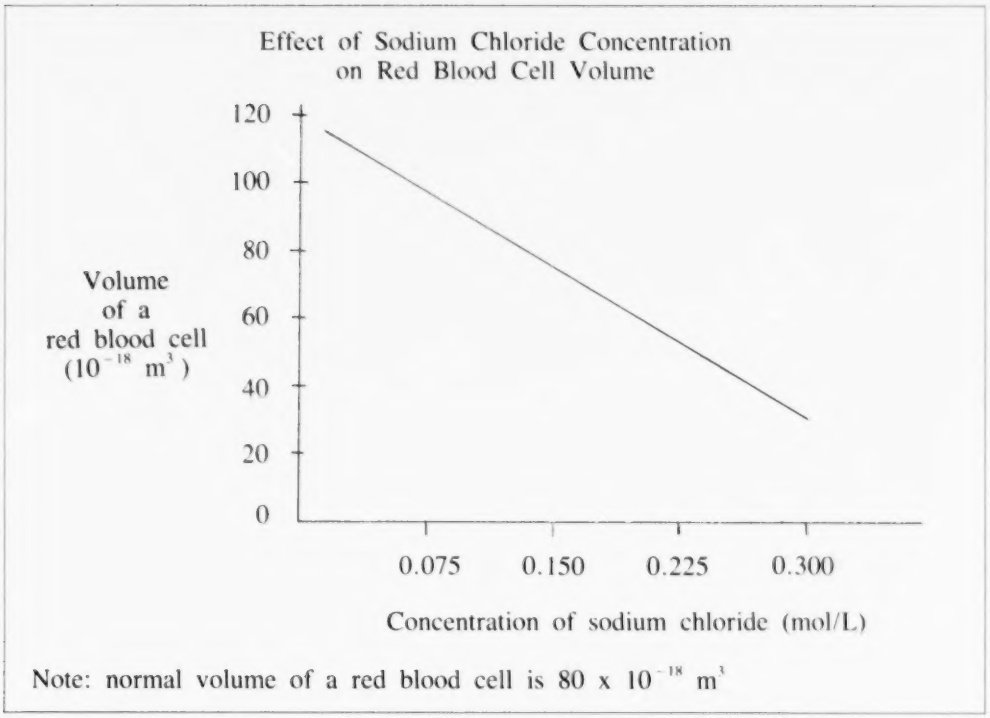
   A. brine shrimp can excrete salt by diffusion

   B. brine shrimp can survive in concentrated salt solutions because their bodies can pump salt in

   C. the mitochondria of the brine shrimp in the 4% salt solution can process oxygen more efficiently than those in the 16% salt solution

   D. energy that would be used for other life processes is being used to keep the brine shrimp's salt concentration normal in the 16% salt solution

Use the following information to answer question 7.



Note: normal volume of a red blood cell is 80 x 10^{-18} m^3

7. If blood plasma has a concentration of 0.300 mol/L of sodium chloride, then the red blood cells will

A. lose water by osmosis
B. lose protein by diffusion
C. gain water and increase in size
D. gain sodium chloride by active transport

---

8. Negative feedback is illustrated when

A. enzymes break down acetylcholine in the synapse

B. nerves stimulate glands which inhibit the production of hormones

C. a hormone accumulates in the blood, inhibiting further production of that hormone

D. a hormone accumulates in the blood, increasing further production of that hormone

Use the following information to answer question 9.

The equation illustrates an enzyme-controlled reaction under optimal conditions in humans.

$$W + X \xrightarrow{\text{Excess enzyme}} Y + Z + \text{heat}$$

9. Which action would accelerate the rate of product formation?

A. Increasing the concentrations of Y and Z
B. Increasing the concentrations of W and X
C. Decreasing the concentrations of X and Y
D. Decreasing the concentrations of W and X

---

10. In an enzymatic reaction that occurs within the human body,

A. the active site is destroyed during the reaction
B. temperatures between 50°C and 60°C will accelerate the reaction
C. the enzyme briefly combines with a reactant and is irreversibly changed by it
D. the joining of the substrate to the active site of the enzyme makes a chemical reaction more likely

11. Vegetables contain cellulose which in humans is

A. chemically broken down
B. digested to form glucose
C. not digested and is eliminated as waste
D. digested and absorbed in the small intestine

12. Carbohydrates, lipids, and proteins, in the presence of water and appropriate enzymes, are broken down into less complex molecules by a chemical process called

A. synthesis
B. hydrolysis
C. dehydration
D. deamination

13. In the small intestine, stomach acid is neutralized mainly by secretions of the

A. lacteals
B. pancreas
C. gastric glands
D. glands of the large intestine

14. One major function of the large intestine is

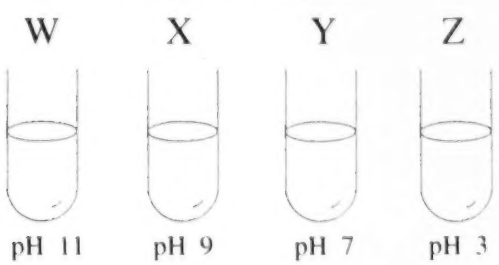
A. absorption of water
B. digestion of vitamins
C. absorption of fats and other lipids
D. digestion of mineral compounds not broken down in the small intestine

15. The presence of food in the stomach stimulates the production of

A. gastrin
B. secretin
C. intestinal juice
D. pancreatic juice

Use the following information to answer question 16.

Egg White Digestion



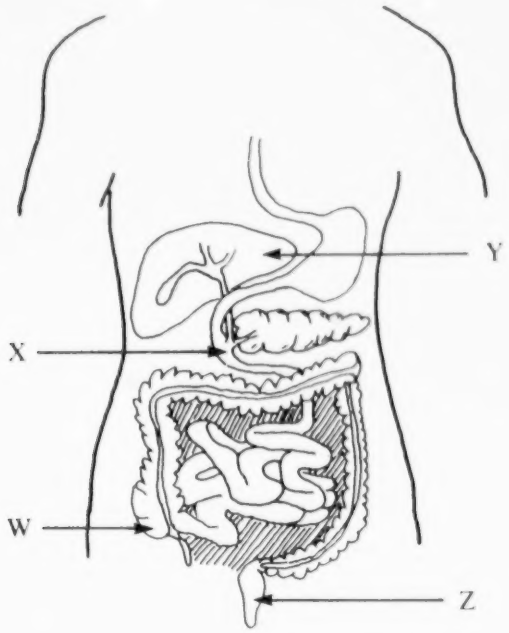
Each test tube contains 5 mL of a pepsin solution and 1 mL of an egg white suspension. The test tubes and their contents were incubated at 37°C for 1 h.

16. Which test tube would contain the greatest concentration of short chains of amino acids?

A. W
B. X
C. Y
D. Z

Use the following information to answer question 17.

Human Digestive System



17. Food undergoing digestion first becomes basic in the structure labelled

A. W
B. X
C. Y
D. Z

---

18. After chewing an unsalted cracker and leaving it in the mouth for a few minutes, a student experienced a sweet taste. Which enzyme and substrate were involved?

A. Pepsin and starch
B. Pepsin and protein
C. Amylase and starch
D. Amylase and protein

19. People on a high protein diet obtain carbohydrates necessary for cellular respiration by

A. breaking down muscle tissue
B. synthesizing amino acids using intermediate products
C. converting amino acids to protein in the mitochondria
D. deaminating amino acids to form intermediate products

20. The pancreas is NOT destroyed by the digestive enzymes it secretes because

A. active sites of the enzymes are destroyed
B. the pancreas has evolved a resistance to these enzymes
C. the walls of the pancreas produce antibodies for defence
D. protein-digesting enzymes are secreted in an inactive form

21. A doctor takes a sample of a patient's blood and detects small amounts of secretin in the sample. One could correctly infer that the patient had eaten a meal

A. high in fats
B. high in proteins
C. which is now in the stomach
D. which is leaving the stomach to enter the small intestine

22. Ingestion of large quantities of fat-soluble vitamins may produce harmful effects if they

A. accumulate in body tissues and interfere with metabolism

B. increase the rate of peristalsis so that fewer nutrients are absorbed

C. inhibit the secretion of bile, which in turn reduces the efficiency of fat digestion

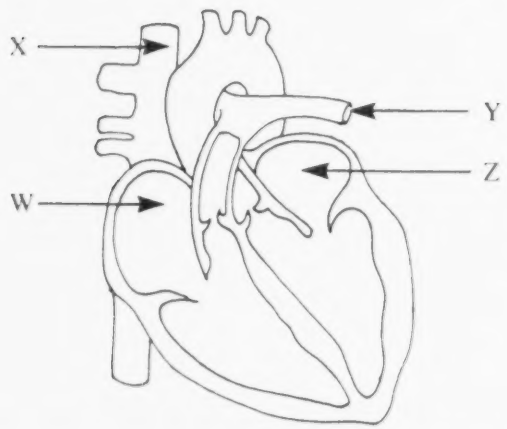
D. prevent the absorption of water in the large intestine, which in turn causes extreme dehydration

23. A person complaining of upper abdominal pain enters a hospital. A doctor notes that the person's skin color is abnormally yellow and a sample of feces is grayish in color and contains much undigested fat. The patient MOST LIKELY has

A. gallstones
B. constipation
C. a duodenal ulcer
D. an infected colon

Use the following information to answer question 24.

The Human Heart



24. Blood that has just returned from the lungs would be found in the structure labelled

A. W
B. X
C. Y
D. Z

---

25. A rise in the concentration of CO_2 in the blood alters blood pressure by first stimulating the

A. pacemaker
B. medulla oblongata
C. stretch receptors of the carotid artery
D. chemoreceptors of the pulmonary artery

26. A red blood cell enters a vena cava and flows through the heart. The correct order of structures through which the red blood cell will pass is

A. right ventricle, AV valve, left atrium, left ventricle
B. right atrium, AV valve, right ventricle, pulmonary vein
C. right ventricle, AV valve, right atrium, pulmonary vein
D. right atrium, AV valve, right ventricle, pulmonary artery

27. A mineral that is important in the formation of hemoglobin is

A. iron
B. iodine
C. calcium
D. phosphorus

28. A homeostatic response to a drop in blood volume would be

A. increased water excretion by the kidneys
B. destruction of red blood cells by the liver
C. increased secretion of aldosterone by the adrenals
D. decreased sympathetic nerve impulses to the heart

Use the following information to answer question 29.

A student listed a number of possible functions of the lymphatic system, one of which is incorrect.

I. Returning fluid removed from the blood
II. Carrying carbon dioxide to the tissues
III. Filtering and destroying bacteria
IV. Carrying fat molecules to the blood

29. The correct functions of the lymphatic system include those numbered

A. I, II, and III
B. I, II, and IV
C. I, III, and IV
D. II, III, and IV

Use the following information to answer question 30.

The events leading to Rh incompatibility in a newborn child are listed randomly below.

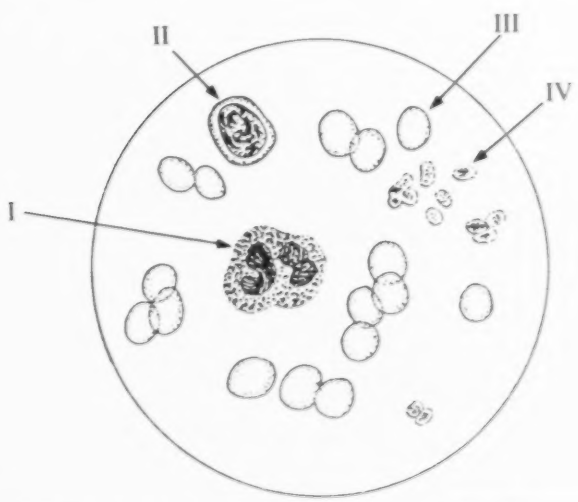
I. Anti-Rh antibodies cross the placenta, leading to destruction of fetal red blood cells.
II. Fetal red blood cells bearing the Rh antigen enter maternal circulation.
III. Anti-Rh antibodies are formed in the mother's blood.
IV. The Rh antigen stimulates an immune response in the mother's blood.

30. The correct sequence of events in the development of Rh incompatibility in the newborn child is

A. I, II, III, IV
B. II, III, I, IV
C. II, IV, III, I
D. IV, II, III, I

Use the following information to answer question 31.

Blood Cells as Viewed Under a Microscope

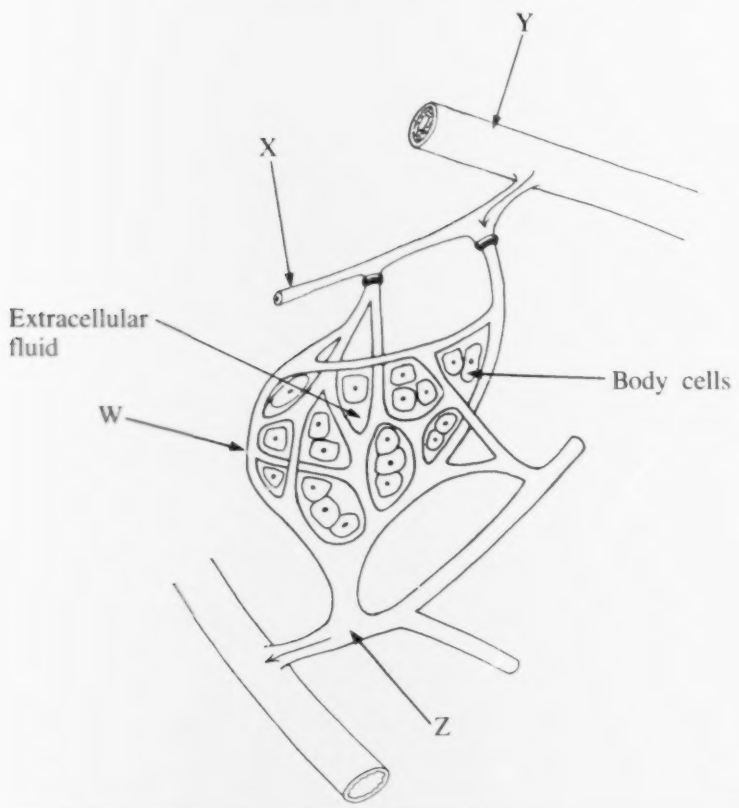


31. Leukocytes are represented by

A. I and II
B. I and IV
C. II and III
D. III and IV

Use the following information to answer question 32.

Blood Flow Through a Capillary Bed



32. The vessel through which most diffusion occurs is labelled

A. W
B. X
C. Y
D. Z

---

33. A person with type A blood has type A protein and

A. A antibodies
B. B antibodies
C. both A and B antibodies
D. neither A nor B antibodies

34. The time it takes for blood to pass through the capillaries of a pulmonary alveolus typically is less than 0.3 seconds. During this time, what will occur?

A. Blood will pick up CO_2, and O_2 will be released to the alveolus.

B. Blood will pick up O_2, and CO_2 will be released to the alveolus.

C. The blood plasma will be cleansed of its entire CO_2 content and will be saturated with O_2.

D. An enzyme will catalyze the conversion of oxyhemoglobin to carbaminohemoglobin.

35. When the blood pressure in a capillary exceeds the osmotic pressure in the capillary, the net movement of fluid is

A. into the tissues
B. into the capillaries
C. unchanged because the walls of the capillaries are relatively impermeable
D. unchanged because the osmotic pressure rises to the same level as blood pressure

36. Oxygen must pass through several organs to reach the area of the lungs where gas exchange takes place. The pathway is

A. trachea → bronchioles → pharynx → bronchi → alveoli
B. trachea → pharynx → bronchi → bronchioles → alveoli
C. pharynx → bronchi → trachea → bronchioles → alveoli
D. pharynx → trachea → bronchi → bronchioles → alveoli

37. The bicarbonate ion is one form in which

A. O_2 is carried to the lungs
B. O_2 is carried to the tissues
C. CO_2 is carried to the lungs
D. CO_2 is carried to the tissues

38. Before it can be used by the body, oxygen in the alveoli must dissolve in water and pass into the blood by

A. osmosis
B. diffusion
C. exocytosis
D. active transport

39. In a laboratory experiment, a student placed a paper bag over the mouth and nose and proceeded to breathe for 30 seconds. At the end of the experiment the student's breathing rate as compared to the normal breathing rate

A. decreased, due to increased concentration of blood CO_2 and increased O_2
B. increased, due to increased concentration of blood CO_2 and decreased O_2
C. increased, due to decreased concentration of blood CO_2 and decreased O_2
D. decreased, due to decreased concentration of blood CO_2 and increased O_2

40. A decrease in blood hemoglobin concentration may cause the

A. heart rate to decrease
B. breathing rate to increase
C. carbaminohemoglobin to increase
D. oxygen levels in the blood to increase

Use the following information to answer question 41.

Five individuals of the same weight, sex, age, and height were tested for cardiac output and blood content. The results are listed below.

Individual	Cardiac Output (L/min)	White Blood Cell Count (number/mm^3 of blood)	O_2 Content of Arterial Blood (mL/100 mL of blood)	O_2 Content of Venous Blood (mL/100 mL of blood)
1. Normal	5.3	8 000	19.5	15.5
2. Hypoxic	4.1	7 850	15.5	12.5
3. Hypoxic	7.3	8 075	10.0	7.0
4. Hypoxic	3.3	7 900	20.3	13.3
5. Hypoxic	6.3	8 000	19.3	18.3

The term "hypoxia" refers to a condition in which the availability or utilization of oxygen is hindered.

41. The individual whose test results exhibit ONLY symptoms of an iron deficiency is identified by number

A. 2
B. 3
C. 4
D. 5

42. In cellular respiration, energy release is associated with the transfer of

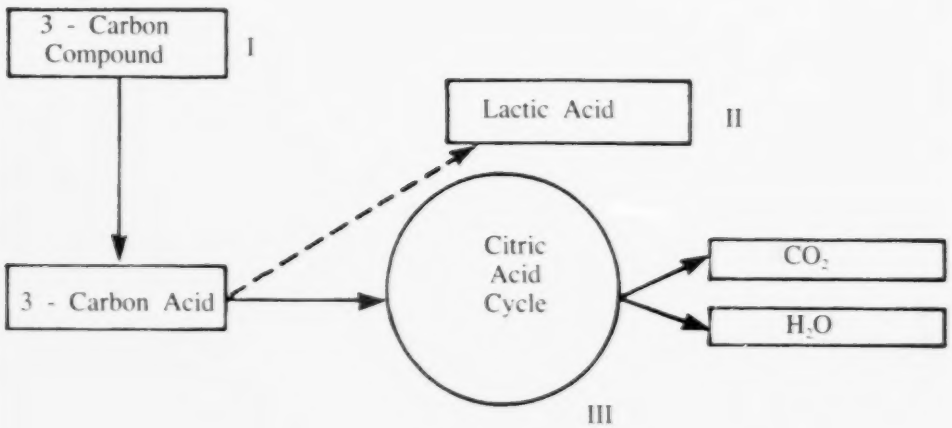
A. electrons and water formation
B. electrons and glucose formation
C. oxygen atoms and protein formation
D. hydrogen atoms and protein formation

43. ATP from cellular respiration is used directly in

A. osmosis
B. diffusion
C. muscle contraction
D. glomerular filtration

Use the following information to answer question 44.

Metabolic Pathways

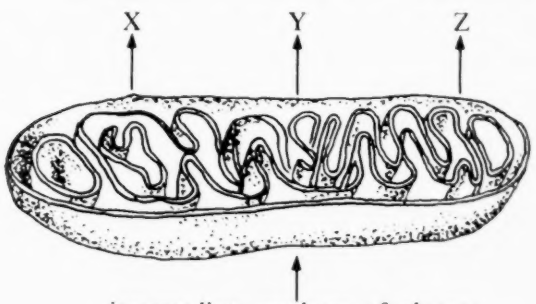


44. The sequence I through II would occur predominantly under

A aerobic conditions in brain tissue
B. aerobic conditions in muscle tissue
C. anaerobic conditions in brain tissue
D. anaerobic conditions in muscle tissue

Use the following information to answer question 45.

Longitudinal Section of a Mitochondrion



45. The products of respiration, labelled X, Y, and Z, that leave the mitochondrion are

A. H_2O, ADP, and CO_2
B. CO_2, ATP, and H_2O
C. glucose, CO_2, and H_2O
D. glucose, ADP, and ATP

---

46. Aldosterone helps to regulate kidney function by

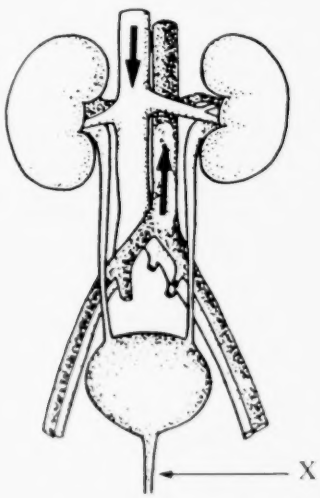
A. decreasing the concentration of urea in the filtrate
B. increasing the permeability of the nephrons to water
C. decreasing the blood pressure within Bowman's capsule
D. increasing the rate of active transport of sodium ions

47. A major characteristic of the human kidney that makes it different from an artificial kidney machine is that materials pass through pores in the glomerular capillaries as a result of

A. pressure filtration
B. osmotic gradients
C. active transport
D. diffusion

Use the following information to answer question 48.

Excretory System



48. The structure labelled X is the

A. ureter
B. rectum
C. urethra
D. collecting duct

---

49. A major function performed by the kidneys, in addition to excretion of metabolic wastes, is the regulation of

A. bile secretion
B. the substances used in the digestive processes
C. the concentration of most body fluid constituents
D. metabolic wastes eliminated from the digestive tract

50. An increase in sodium ions retained by the body will

A. decrease blood pressure
B. increase urea formation in the liver
C. increase water retention by the body
D. decrease protein reabsorption in the kidneys

51. The amount of water reabsorbed by the collecting duct of the nephron is partially determined by the

A. amount of urea secreted
B. amount of ADH secreted
C. concentration of uric acid
D. concentration of carbonic acid

Use the following information to answer question 52.

> It was observed that an experimental subject consistently passed a larger volume of urine after consuming three cups of black unsweetened coffee containing caffeine than after consuming an equal volume of sweetened lemonade. Assume all other variables were carefully controlled.

52. Which hypothesis is based on an appropriate body response to the active ingredient identified in the beverage?

A. The caffeine in the coffee caused the liver to produce more urea.

B. The caffeine in the coffee caused a reduction in the secretion of ADH by the pituitary gland.

C. The sugar in the lemonade blocked the reabsorption of water by the distal tubules of the kidney.

D. The sugar in the lemonade provided additional energy for the active transport of water out of the nephrons.

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53. The medulla oblongata receives and processes information from the

A. eyes and ears
B. skeletal muscles
C. endocrine and excretory systems
D. circulatory and respiratory systems

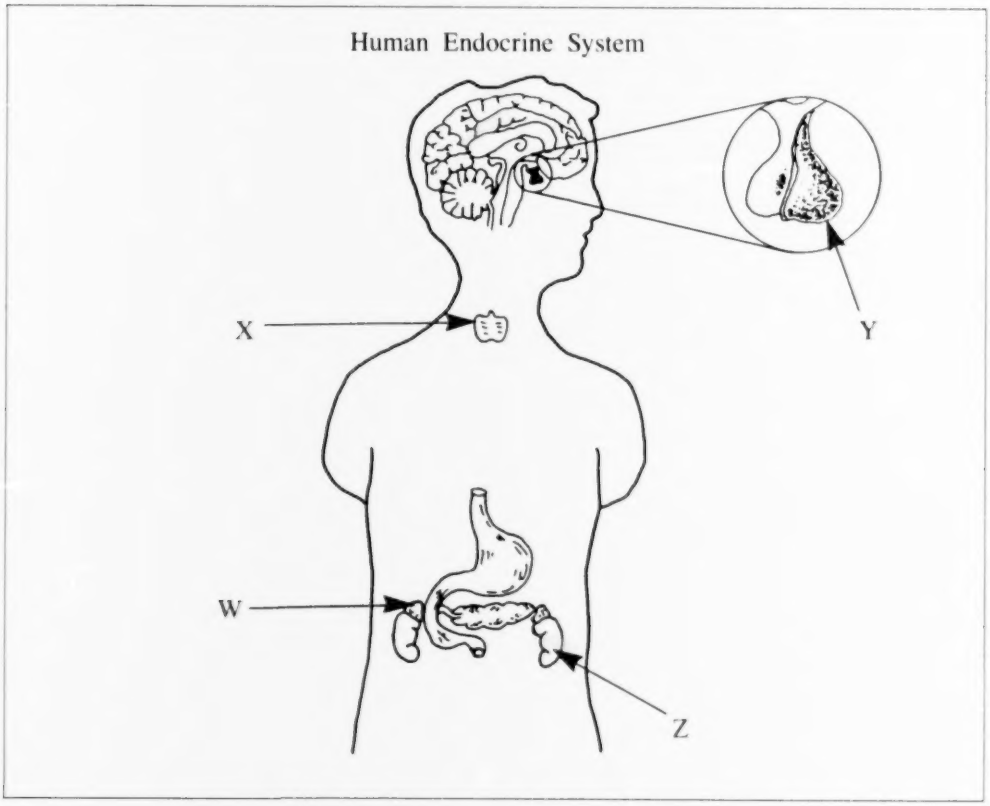
54. Which of the following are both endocrine glands?

A. Sweat gland and testis
B. Salivary gland and testis
C. Pituitary gland and ovary
D. Sweat gland and hypothalamus

55. When the image of a viewed object focuses behind the retina of the eye, the condition is called

A. astigmatism
B. far-sightedness
C. near-sightedness
D. retinal malfunction

Use the following information to answer question 56.



56. The gland that produces a hormone which enables the body to cope with stress is labelled

A. W
B. X
C. Y
D. Z

57. The refractory period is the time during which a neuron

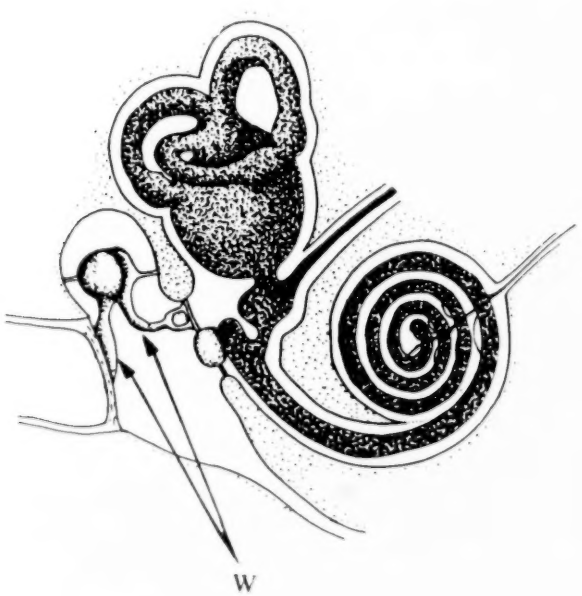
A. can respond to an impulse
B. will not respond to an impulse
C. transmits an impulse across a synapse
D. will only respond to a very strong stimulus

58. The inability of the pituitary gland to release ADH inhibits the reabsorption of

A. water
B. protein
C. sodium ions
D. amino acids

Use the following information to answer question 59.

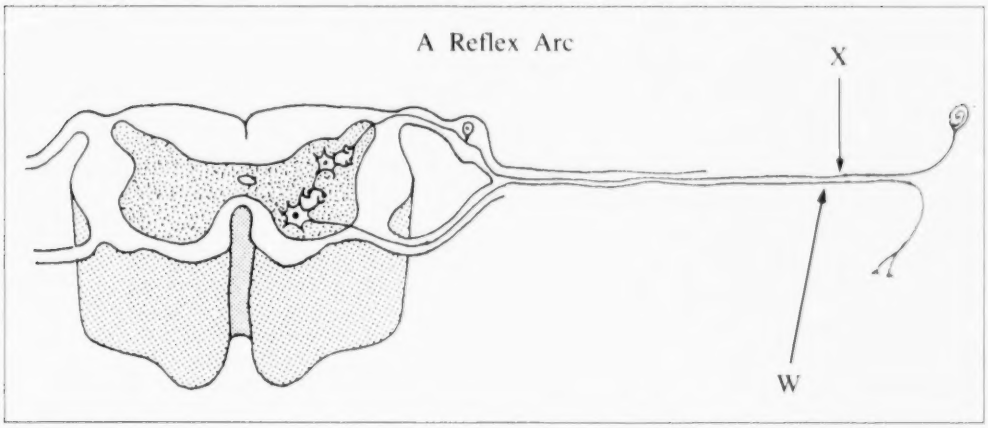
Human Ear



59. The function of the structures labelled W is to

A. transmit vibrations
B. maintain dynamic and static balance
C. convert nerve impulses to sound vibrations
D. transmit nerve impulses to the auditory nerve

Use the following information to answer question 60.

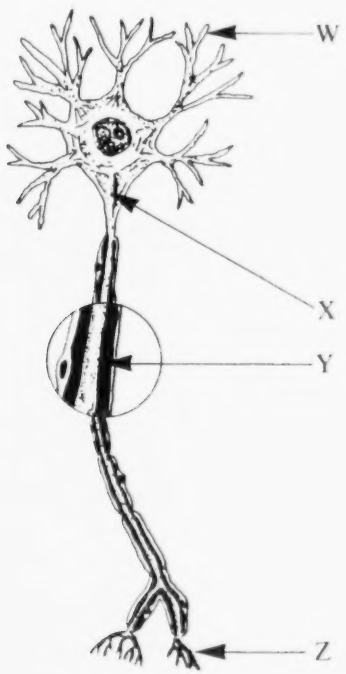


60. Structure X conducts impulses from heat receptors in the big toe. If the heat receptors are stimulated by a hot object, structure W would conduct impulses to

A. the spinal cord
B. muscles in the leg
C. pain receptors in the big toe
D. the brain, which receives the stimuli

Use the following information to answer question 61.

A Human Neuron



61. A dendrite and myelin are labelled respectively

A. X and Y
B. X and Z
C. W and Y
D. W and Z

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62. A neuron which does not need to participate in a spinal reflex is

A. a sensory neuron to the brain
B. a motor neuron from the spinal cord
C. an interneuron within the spinal cord
D. a sensory neuron from the sensory receptor

63. Outdoors on a moonlit night, human peripheral vision is reasonably efficient because

A. the peripheral cells are less sensitive to light
B. there are more rods on the periphery of the retina than at its centre
C. there are more cones on the periphery of the retina than at its centre
D. the fovea is sensitive only to dim light, and therefore functions best in the dark

64. Insecticides that inhibit the action of cholinesterase kill insects by

A. destroying all nerve impulses
B. causing continuous muscle contractions
C. preventing the use of ATP by the neuron
D. preventing the transmission of impulses across the synapse

65. If a tumor were to destroy a part of the frontal lobe of the cerebrum, most likely there would be a change in

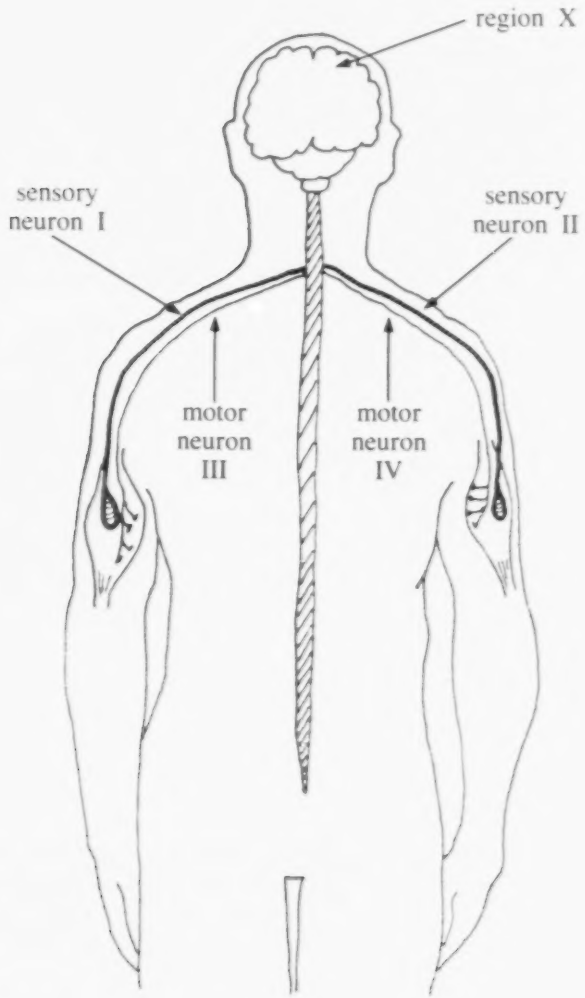
A. vision
B. hearing
C. personality
D. reflex action

66. When the threshold level of a stimulus is just reached, the impulse carried by the neuron is the same as if the threshold level were exceeded. This phenomenon is known as

A. action potential
B. reverse polarity
C. a refractory response
D. an all-or-none response

Use the following information to answer question 67.

Dorsal View of Brain and Spinal Cord



67. If the region labelled X in the diagram were damaged, it would be reasonable to infer that no information from X will move along the neuron labelled

A. I
B. II
C. III
D. IV

68. Shivering becomes more pronounced at 5°C than at 10°C because

A. more muscle units are contracting, each with more force
B. more muscle units are contracting, each with the same force
C. the same number of muscle units are contracting, each with less force
D. the same number of muscle units are contracting, each with more force

69. A function of ligaments is to connect

A. bone to bone
B. bone to muscle
C. muscle to tendon
D. muscle to muscle

70. The conversion that supplies the required energy for muscle contraction might be illustrated by

A. ADP → ATP
B. O_2 → lactic acid + CO_2
C. ATP → ADP + Phosphate
D. glucose → water + lactic acid

Use the following information to answer question 71.

Muscles of the Human Arm

71. Muscles X and Y may be considered an example of

A. a smooth muscle pair
B. an extensor muscle pair
C. an involuntary muscle pair
D. an antagonistic muscle pair

---

72. Substances necessary for muscle contractions are

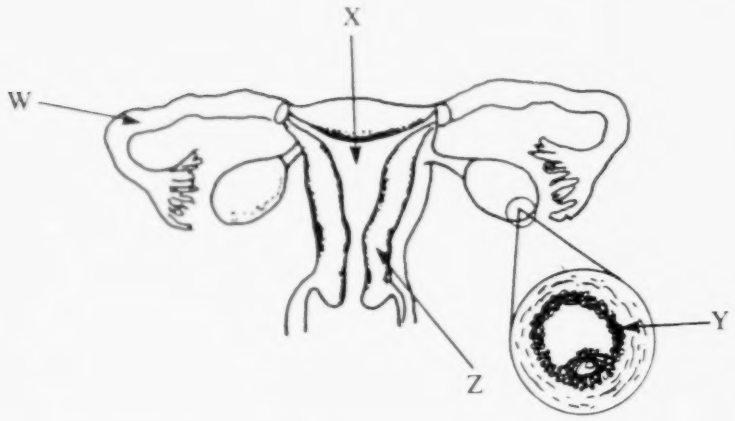
A. actin, myosin, calcium ions, and ATP
B. actin, myosin, ADP, and calcium ions
C. actin, ATP, creatine, and calcium ions
D. myosin, calcium ions, creatine, and glycogen

73. The fluid in semen is produced by the

A. penis, prostate gland, and vas deferens
B. testes, vas deferens, and seminal vesicles
C. seminiferous tubules, epididymis, and prostate gland
D. seminal vesicles, prostate gland, and Cowper's glands

Use the following information to answer question 74.

Female Reproductive System



74. The structure that is responsible for producing a hormone that blocks FSH secretion is labelled

A. W
B. X
C. Y
D. Z

---

75. Failure of the testes to descend into the scrotum from the abdominal cavity would most likely affect the production of

A. LH
B. semen
C. viable sperm
D. interstitial cell stimulating hormone

76. Since oxytocin is a hormone which stimulates contraction of smooth muscle, it can be used to

A. stimulate the heart
B. improve muscle tone
C. decrease fetal blood pressure
D. speed up the delivery of a baby

Use the following information to answer question 77.

Events in the Female Reproductive System Listed in Random Order

I. Ovulation
II. Implantation
III. Menstruation
IV. Fertilization

77. The order in which the above events occur is

A. I, II, III, and IV
B. II, IV, I, and III
C. III, I, IV, and II
D. IV, III, II, and I

---

78. A pituitary disorder that inhibits FSH production would

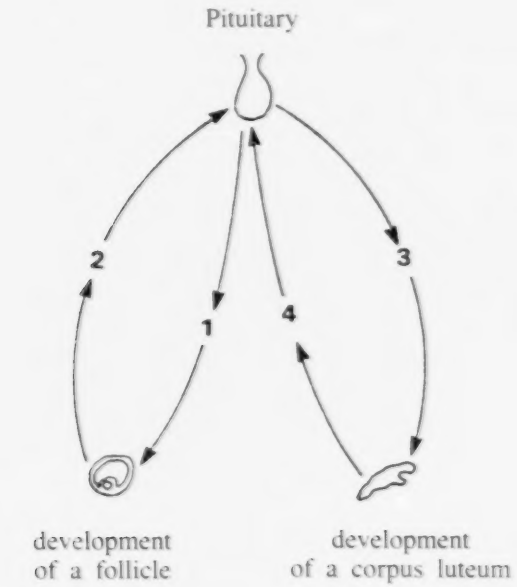
A. induce ovulation
B. induce menstruation
C. prevent development of a new follicle
D. stimulate the development of a new follicle

79. Fertilization in humans normally occurs in the

A. ovary
B. uterus
C. endometrium
D. Fallopian tube

Use the following information to answer question 80.

The diagram shows the relationship that exists between the pituitary and the ovaries.



80. The hormone represented by number 3 is

A. LH
B. FSH
C. estrogen
D. progesterone

YOU HAVE NOW COMPLETED THE MULTIPLE-CHOICE SECTION OF THE EXAMINATION. PLEASE PROCEED TO THE NEXT PAGE AND ANSWER THE WRITTEN-RESPONSE QUESTIONS IN PART B.

PART B

INSTRUCTIONS

Please write your answers in the examination booklet as neatly as possible.

NOTE: The perforated pages at the back of this booklet may be torn out and used for your rough work.

TOTAL MARKS: 20

START PART B IMMEDIATELY

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1. Why does active transport eventually slow down when a body cell is cooled? **(2 marks)**

2. The kidney and the liver are organs that have special functions that cause changes in the composition of the blood. State THREE changes that each organ causes in the composition of the blood as it passes through that organ.

   a. Kidney **(3 marks)**

   b. Liver **(3 marks)**

3. Why does a blood clot in a coronary artery seriously affect cardiac muscle? **(2 marks)**

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Use the following information to answer question 4.

An experiment was designed to determine the effects of pH and temperature on human digestion of egg white. The following chart indicates the contents of six test tubes. Note: * indicates that the substance named in the column at the left is present in the test tube.

Test Tube Contents	Test Tubes					
	Not Boiled			Boiled		
	1	2	3	4	5	6
Pepsinogen (15 mL)	*	*	*	*	*	*
Egg White (3 mL)	*	*	*	*	*	*
H_2O (distilled)	*	*	*	*	*	*
HCl (dilute)		*			*	
NaOH (dilute)			*			*

The contents of test tubes 4, 5, and 6 were boiled for 10 minutes. All test tubes were then incubated at 37°C for 24 hours. A test for products of protein digestion was then performed on the contents of each of the six test tubes.

(3 marks)

4. After the 24-hour period of incubation, the contents of which one of the test tubes would show the GREATEST amount of protein digestion? Explain your answer.

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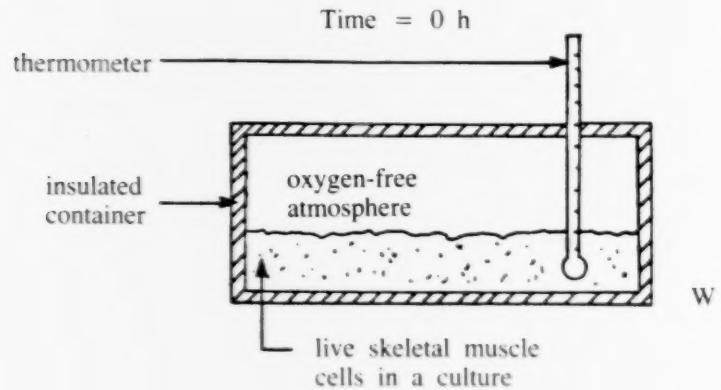
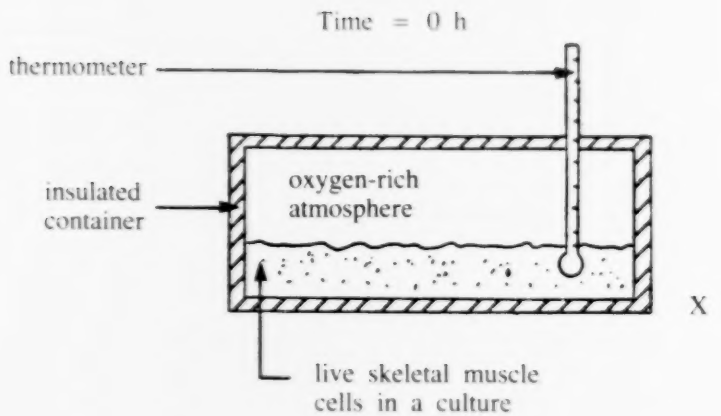
Use the following information to answer question 5.

Experiment to Determine the Relationship Between Temperature and Metabolism





5. After 24 hours, how would the temperature reading of W compare with that of X? Explain. **(2 marks)**

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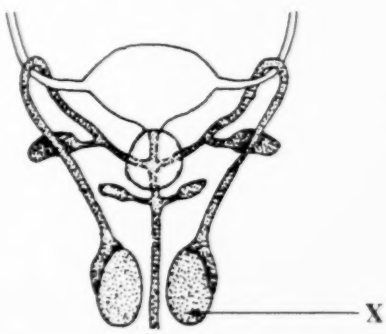
(3 marks)

6. EITHER draw and label OR describe a negative feedback system which involves the hypothalamus-pituitary complex and one other endocrine gland in the body.

Use the following information to answer question 7.

Male Urogenital System



(2 marks)

7. Predict TWO changes that would occur in structure X if the pituitary gland were removed.

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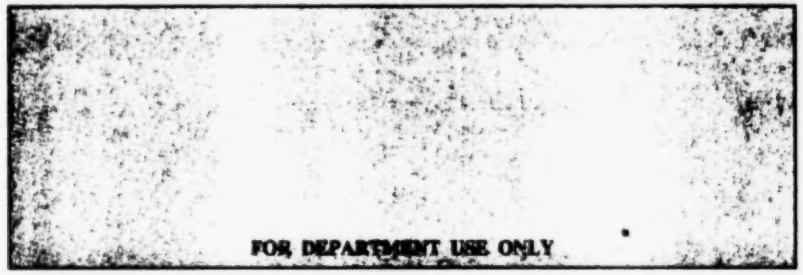
M1 M2 M3 M4

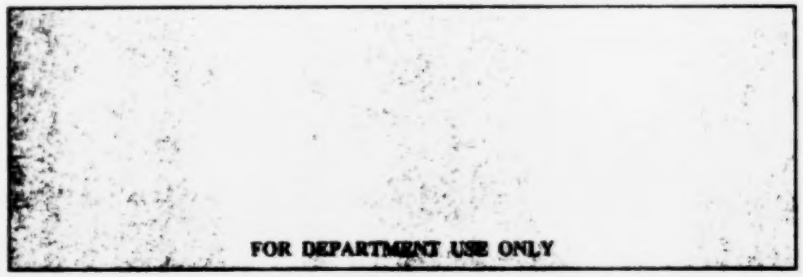


BIOLOGY 30

NAME: (LAST NAME) (FIRST NAME) DATE OF BIRTH: Y M D SEX:

PERMANENT MAILING ADDRESS: _____
(Apt./Street/Ave./P.O. Box) (Village/Town/City) (Postal Code)

SCHOOL CODE: SCHOOL: _____ SIGNATURE: _____



BIOLOGY 30